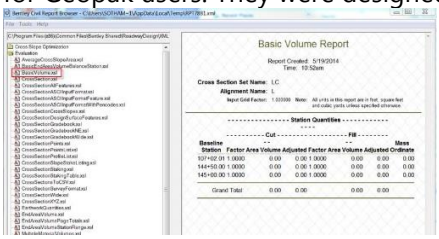
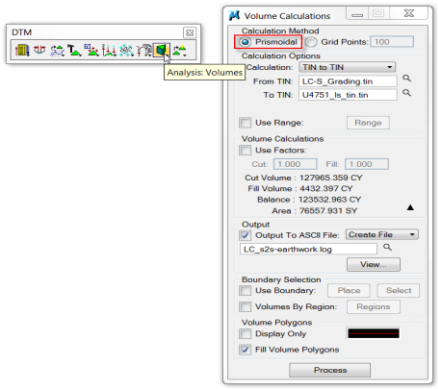
5_11 PRISMOIDAL EARTHWORK VOLUMES

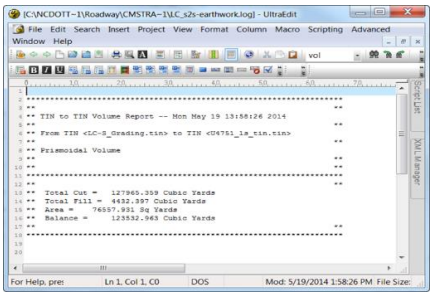
Question:
How can I do a quick calculation of earthwork in CM without cutting cross sections?

Answer:
Bentley states the XML style sheets (XLS) for earthwork do not work internally inside Roadway Designer for Geopak users. They were designed to work with inRoads cross sections.



If you wanted a quick earthwork calculation for functional/preliminary design and for basic cut and fill without cutting cross sections, use the Geopak prismoidal method . Since the proposed alternate surface "S_Grading.TIN" (grading model – see page 50 of the training manual attached) is automatically created, compare this surface with the existing ground surface TIN to generate basic volume for cut and fill. The volumes "shape" is drawn in the 3D DGN for verification.





The prismoidal method can be applied to Hydro's head and tail ditches DDE computation where the cross section cannot be determined by "an alignment corridor". We are gradually getting away from cross sectional earthwork quantities (Geopak and inRoads) as a Department. This is the direction I am currently focusing on moving forward for most of our quantities including regular earthwork. We will continue to monitor the progress Bentley has made in this area of OpenRoads Technology and make necessary recommendations when possible.

It is important to note the Geopak prismoidal method is nothing new to the NCDOT. Dean Noland has been doing excavation in borrow pits computations using Tin2Tin comparison and verifying the results with Geopak cross sections in the Photogrammetry Unit 15 years ago.